

## ***Interactive comment on “Aerosol and precipitation chemistry in a remote site in Central Amazonia: the role of biogenic contribution” by T. Pauliquevis et al.***

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We thank the referee for the very useful comments and positive view of our manuscript. We have addressed all the comments in detail in the revised version of the manuscript. Bellow we discuss each specific comment by the Referee 1, and we make it clear our actions to address it.

1) The first observation concerns about the need for more discussion on the impacts of biomass burning not only during the dry season but also in the wet season and its seasonality. We agree that this is a critical point since the purpose of the paper is exactly to separate pristine natural biogenic emissions from anthropogenic or biomass

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burning components.

During the dry season in Balbina, the impact of biomass burning is rather small compared to other regions in Amazonia. Concentrations of PM<sub>2.5</sub> rises from a baseline of 2-3 ug/m<sup>3</sup> in the wet season to about 10 ug/m<sup>3</sup> in the dry season. These values can be compared to concentrations of PM<sub>2.5</sub> of 200-300 ug/m<sup>3</sup> in the Southwest Amazonia. So, in Balbina, even during the dry season, biomass burning impact is not really very high. In Figure 2 the time series shows this feature over 4 years of measurements. Remote sensing of fire counts during the wet season shows that there are very few fire counts that could be clearly transported from Eastern Amazonia to Balbina. The data collected shows that the biomass burning impact in Balbina during the wet season is negligible.

Action: We included this extra discussion in the revised version of the manuscript.

2) The referee suggested the separation of data in monthly instead of 6-month means. The suggested analysis was performed, and several questions stated by both referees could be better understood and answered due to this approach.

3) The referee wrote "The analysis and discussion of the rainwater section seemed weak." In the revised version, we increased significantly the discussion of previous studies of rainwater chemistry in Amazonia, now including all previous works and references that the referee mentioned. The biomass burning signature is dominated by K, sulfate and somewhat chlorine, in agreement with previous studies. A discussion of biomass burning signature was added in the revised version.

4) YES, we agree that the use of relative terms was excessive and correct this in the revised version.

5) The referee makes small suggestions for text corrections and ALL of them were implemented in the revised version.

6) In the question: "Can Na be included in the principal component analysis to better

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identify a marine component?" Sodium was actually included in the rainwater principal component analysis, and helped to discriminate the sea-salt component. Sodium in aerosols was most of the time below detection limits due to X-ray absorption issues with the aerosol PIXE analysis, and thus could not be included in the PCA aerosol analysis.

The authors thank the referee for the careful revision of our manuscript.

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Interactive comment on Atmos. Chem. Phys. Discuss., 7, 11465, 2007.

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